

NON-PUBLIC?: N
ACCESSION #: 9206240053
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Peach Bottom Atomic Power Station - PAGE: 1 OF 03
Unit 2

DOCKET NUMBER: 05000277

TITLE: Reactor Scram due to an Unexpected Main Turbine Combined
Intermediate Valve Closure

EVENT DATE: 05/20/92 LER #: 92-009-00 REPORT DATE: 06/17/92

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: N POWER LEVEL: 099

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR
SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Albert A. Fulvio, Regulatory TELEPHONE: (717) 456-7014
Supervisor

COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT:

On 5/20/92 at 2115 hours, during the performance of a Routine Test (RT)-0-001-408-2 "Cycling of Combined Intermediate Valves", a reactor scram occurred when two Main Turbine Combined Intermediate Valves (CIV) closed simultaneously causing a power load unbalance trip signal. The power load unbalance circuitry caused a Main Turbine Control Valve fast CLOSure which resulted in a reactor scram. The cause of the event has been determined to be an unexpected closure of the #2 Intercept Valve (IV) during testing of the #3 CIV. The investigation was unable to recreate the inadvertent closure of the #2 IV. However, a faulty test solenoid on the #2 IV was discovered which may have been a contributing factor to this event. Following the event, the scram and isolations were reset and the affected systems were restored to normal. Two CIV test

logic relays and a circuit board in the test logic were replaced as a preventive measure. The faulty test solenoid will be sent offsite for failure analysis and corrective actions will be reviewed and implemented as appropriate. No actual safety consequences occurred as a result of this event. No previous similar events have been identified.

END OF ABSTRACT

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Requirements for the Report

This report is submitted to satisfy the requirements of 10 CFR 50.73(a)(2)(iv) because of unplanned Engineered Safety Feature Actuations.

Unit Conditions at Time of Event

Unit 2 was in the RUN mode at 99% of rated thermal reactor (EII:RPV) power. There were no systems, structures, or components that were inoperable that contributed to the event.

Description of Event

On 5/20/92 dt 2115 hours, during the performance of a Routine Test (RT)-0-001-408-2 "Cycling of Combined Intermediate Valves", a reactor scram occurred when two Main Turbine (EII:TRB) Combined Intermediate Valves (CIV) (EII:V) closed simultaneously causing a power load unbalance trip signal. The power load unbalance circuitry compares the Main Generator (EII:GEN) output power to Main Turbine steam flow and closes the Main Turbine Control Valves if a mismatch of greater than 40% occurs. This trip signal caused a Main Turbine Control Valve fast closure which resulted in a reactor scram. A Primary Containment Isolation System (PCIS)(EII:JM) Group II/III isolation occurred as expected due to the reactor water level decrease after the scram. In addition, two Main Steam Relief Valves momentarily opened due to high reactor pressure following the Turbine trip. The high reactor pressure also caused the Alternate Rod Insertion system to actuate but the Control Rod Drives (EII:AA) were already inserted. The scram actuation and PCIS Group II/III isolations were reset by 2140 hours. The NRC was notified of the event via ENS at 2236 hours.

Cause of Event

The cause of the event has been determined to be an unexpected closure of the #2 Intercept Valve (IV) during testing of the #3 CIV. The #3 CIV

logic interacts with the #2 IV closure function. It is believed that either a faulty test relay (EHS:RLY) or a faulty circuit board (EHS:ECBD) caused a voltage transient or momentary energization of the #2 IV test solenoid (EHS:SOL). A faulty test solenoid on the #2 IV was discovered which may have been a contributing factor to this event. The test solenoid is used to drain the pressure from beneath the #2 IV hydraulic piston which slow closes the valve for testing. The faulty test solenoid was found to stick in the drain position which could combined with another failure cause an unexpected closure of the #2 IV. An extensive investigation was performed which included several attempts to recreate the event. The investigation was unable to recreate the inadvertent closure of the #2 IV.

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Analysis of Event

No actual safety consequences occurred as a result of this event. All isolations and initiations functioned as designed. Closure of the second Main Turbine CIV caused a Main Turbine Control Valve fast closure which would result in significant addition of positive reactivity and the scram counteracts this addition.

Corrective Action

Following the event, the scram and isolations were reset and the affected systems were restored to normal.

The faulty test solenoid on the #2 IV was replaced and tested satisfactorily. Since the exact cause of the #2 IV inadvertent closure has not been determined, two additional CIV test logic relays and a circuit board in the test logic were replaced as a preventive measure.

The faulty test solenoid will be sent offsite for failure analysis. The results of this analysis will be reviewed by the station and corrective actions will be implemented as appropriate. Any significant additional causes and associated corrective actions will be submitted in a revision to this report as necessary.

Previous Similar Events

No previous similar events have been identified which involved an unplanned CIV closure due to a faulty test solenoid.

ATTACHMENT 1 TO 9206240053 PAGE 1 OF 1

CCN 92-14077

PHILADELPHIA ELECTRIC COMPANY

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KEN POWERS
PLANT MANAGER

June 17, 1992

Docket No. 50-277

Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: Licensee Event Report
Peach Bottom Atomic Power Station - Unit 2

This LER concerns a reactor scram due to an unexpected Main Turbine
Combined Intermediate Valve closure.

Reference: Docket No. 50-277
Report Number: 2-92-009
Revision Number: 00
Event Date: 05/20/92
Report Date: 06/17/92
Facility: Peach Bottom Atomic Power Station
RD 1, Box 208, Delta, PA 17314

This LER is being submitted pursuant to the requirements of 10 CFR
50.73(a)(2)(iv).

Sincerely,

cc: J. J. Lyash, USNRC Senior Resident Inspector
T. T. Martin, USNRC, Region I

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